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[For a general discussion of animal husbandry in India, see 6: Spate AW1 India, category 116, pp. 228-231.]

2:Gough E-4, 5 (1947-1949)1961 A Wll Kerala A Wll
Central Kerala Nayar

nese (from at least the sixth century) and after 1498 the Portuguese, followed by the English, Dutch, and French (Logan, 1951, I: 251–254, 258, 294–399).

The coast falls roughly into three natural divisions: the coastal strip, the midlands, and the highlands rising into the Ghats (cf. Buchanan, 1807: 565–566). The coastal strip is flat and sandy. Its chief product is coconuts, with some rice and bananas. In the southern half it is broken by salt-water lagoons which for over a hundred miles form a continuous navigable chain parallel to the sea. Most of the chief towns are situated on the coast, divided by chains of little fishing villages. Many of the coast towns are ancient, and most of them lie at the mouths of navigable rivers which flow westward from the Ghats. From time immemorial raw materials, chiefly pepper, were brought by boat from the inland hillsides for shipment from these ports.

The midlands comprise low hills and fertile valleys. Broad strips of alluvial rice lands lie in the valleys, thinning out as the land rises into the foothills of the Ghats. On the hill slopes are gardens of coconut palms, bananas, pepper, ginger, and many fruit trees such as jack and mango. It was probably wild pepper which was exported in Roman times, but pepper and other spices have been deliberately cultivated at least since 1290 (Ricci, 1931: 326). Cashew nuts, introduced by the Portuguese, formed an additional export crop. Small merchant settlements, market-centers, and the military fortifications of petty chiefs existed at strategic points on river banks. Some of these centers grew into bazaar towns in the nineteenth century. But the mass of the population traditionally lived, as today, in scattered village communities on garden land surrounding or surrounded by fields of wet rice, the main subsistence crop. Wet-rice cultivation depended on plough agriculture with teams of oxen or water buffalo. Goats and chickens were the other significant domestic animals.

The highlands rising into the Ghats were covered mainly by deciduous forests. The foothills, interspersed with occasional rice flats, were sparsely populated by people of the same cultural groups as those in the plains. They eked out their wet-rice cultivation with garden crops of fruits, spices, and vegetables, with shifting hoe cultivation of dry grains on hillsides, and with forest hunting of elephant, deer, and pig. Higher in the mountains lived primitive tribes of hunters and shifting cultivators, having only occasional contacts with the kingdoms of the plains.

Throughout most of the area Kerala's rainfall varies between 75 and 170 inches, being heaviest in the north where the mountains are

824 765 782 613 [775] [825] [231] place them in the bell-metal vessel in which the rice was boiled. The senior places the vessel on her head, and leads the way to a tank, on the banks of which the rice is thrown. It is hoped that crows will come and eat it; for if they do, the impression is received that the deceased's spirit is pleased with the offering; but if somehow it is thought that the crows will not come and eat it, the rice is thrown into the tank. Dogs are not to be allowed to eat it. The women bathe after the rice has been thrown away.

765 613 574 783 [824] When the ceremony which has been described has been performed for the seventh time, *i.e.*, on the seventh day after death, the piece of palmyra leaf is removed from the ground, and thrown on the ashes of the deceased at the place of cremation. During these seven days no member of the Taravâd goes to any other house. The house of the dead and all its inmates are under pollution: no outsider enters it but under ban of pollution, which is, however, removable by bathing. A visitor entering the house of the dead during these seven days must bathe before he can enter his own house. During these seven days the Kâranavan of the family receives visits of condolence from relatives and friends to whom he is "at home" on Monday, Wednesday or Saturday. They sit and chat, chew betel and go home, bathing ere they enter their houses.

[184] [431] It is said that in some parts of Malabar the visitors bring with them small presents in money or kind to help the Kâranavan through the expenditure to which the funeral rites necessarily put him.

765 613 To hark back a little, it must not be omitted that on the third day after the death, all those who are related by marriage to the Taravâd of the deceased combine and give a good feast to the inmates of the house and to the neighbours, who are invited, one man or one woman from each house. The person so invited is expected to come. This feast is called Patni Karigi. On the seventh day a return feast will be given by the Taravâd of the deceased to all relatives and neighbours.

[783] Between the seventh and fourteenth day after death no ceremony is observed; but the members of the Taravâd remain under death pollution, and then on the fourteenth day comes the Sanchayanam. It is the disposal of the calcined remains; the ashes of the deceased. The male members of the Taravâd go to the place of cremation and, picking up the pieces of unburnt bones which they find there, place these in an earthen pot which has been sun-dried—not burnt by fire in the usual way—cover up

6:Fawcett G-5 (ca. 1900)1915
AWll Kerala AWll
Nayar

below the Nâyar is permitted to enter. To the north, south, east, and west, there is a level entrance into this hollow square, and beyond this entrance no man of inferior caste may go. The Pânan receives a certain quantity, about 10 lb. of raw rice for his performance.

In the afternoon a small crowd of Vettuvars come to the temple carrying with them swords, not very dangerous ones, and about ten small baskets made of cocoanut palm leaves, containing salt.* These baskets are carried slung on a pole as before. These men dance and shout in much excitement, cutting their heads with their own swords in their frenzy. Some of them represent devils or some kind of inferior evil spirits, and dance madly, under the influence of these spirits which they represent. Then comes the Arayân as on the previous day with his little procession, and lastly comes the blacksmith with the sword.

It is explained by the Malayalis that the individuals of the various castes who hold the office of tailor, goldsmith and so on to the temple, do so, not for the sake of what they receive from the temple, but in order to mark their position of superiority in their caste. The ceremonial allotted to each also no doubt marks his position in the ladder of caste.

The procession in the evening of this the seventh and last day is a great affair. Eight elephants which kept line beautifully, took part in this when I witnessed it. One of them very handsomely caparisoned had on its back a priest (Mûssad) carrying a sword smothered in garlands of red flowers representing the goddess. Up to this time, when she is represented by a sword, it will be remembered she has been represented by an image. The elephant bearing the priest with the sword is bedizened on the forehead with two golden discs, one on each side of the forehead, and over the centre of the forehead hangs a long golden ornament.† He bears other jewels, and over his back is a large canopy-like red cloth richly wrought. Before the elephant walked a Nâyar carrying in his right hand in front of him a sword of the kind

* The use of salt here is obscure as to the purpose. I remember a case of a Nâyar's house having been plundered, the idol was knocked down and salt was put in the place where it should have stood. The act was looked on as most insulting.

† The discs on the elephant's forehead are common in Malabar in affairs of ceremony. The Mappila poets are very fond of comparing a beautiful girl's breast to these cup-like discs.

778 All the land about it, measuring a mile square, is said to
423 belong to it. This would be enormous property, as the
[635] taluk where this kavoo is situated is one of the richest in Travancore. A trifle is given by the Sircar every year. If more funds are required, the Nambiyadi is expected to meet them from his own private income. The grove and its temples cover an immense oblong space measuring about 16 acres in extent. The inmates of the Illam are
[688] the poojaries of the gods in this grove. It is believed
[825] that whenever the poojah is not performed with the strictest personal purity or care to small details, the serpent gods get offended, which feeling is exhibited by
778 the largest cobras coming out of the grove. It should be
776 remembered that, as a rule, the serpents are not seen out
825 of their holes, though hundreds of them are known to exist in these large groves. When any is seen, especially if a real cobra, the village astrologer is consulted, who readily finds out the cause of the wrath of the serpent gods, and steps are taken immediately to pacify them by propitiatory ceremonies. The people believe in these ceremonies most implicitly. That is not a mere form with them. In a house in North Travancore, where
776 I lived some years, there used to be seen now and again
825 snakes of all kinds, and in answer to my request to the servant of my landlord to keep the kavoo neat, he invariably said, "Please, sir, order some lights and milk to the kavoo," for this man most sincerely believed that this was the only effective way of keeping out the snakes from view. He did not seem to believe that there was any good in keeping the premises neat and clean. It should here be noted that a true Hindu population never pelt at or harm the snakes when they are seen. They are objects of worship. One of our retired officials told me that some years ago, when he was young and new to the place, he was puzzled by some of the parties present at his cutcherry telling him that the 'god was coming.' The crowd made way, and on rising, this official was horrified to see that the god referred to was a live cobra. This village he spoke of, even now abounds with serpents, but strange to say, these reptiles
● [231] seldom harm man. They are evidently become domesticated animals, for we seldom hear of snake-bites in that village, though the general belief is that there are more snakes there than rats. The people also seem to be quite at home with them, for they do not get put out when they see these reptiles."

9:Iyer E-4, 5 (ca. 1902-1906)1912
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[facing p. 5]

9:Iyer E-4, 5 (ca. 1902-1906)1912
AWll Kerala AWll
Nayar

776 [782] the malignant propensities of those spirits. The most popular of the festivals is the *Mandalam*, which begins on the first of 796 Vrischigam (middle of November) and lasts for forty-one days. 776 In addition to the daily *pújas* to the image of Bhagavati by Brahman priests, special rites and ceremonies (*Kólamezhuthum Páttum*) are also performed by a particular class of Sudras to the figure of the goddess made on the floor by means of 776 coloured powders, while the devotees sing songs in her praise 796 to the accompaniment of lute-like musical instruments. A [534] man in a fantastic dress with an array of jingling bells round [532] his loins, heavy sounding bell-metal anklets on each foot and a scythe-shaped sword in his hand impersonates the goddess and dances to the sound of tom-toms round the figure of the god- [785] dess Bhadrakáli on the floor. The *Velichapád*, as he is called, [787] becomes highly excited and in his frenzy sometimes even cuts his forehead and causes it to bleed. He speaks, or rather the deity speaks through him, in broken yet commanding tones wholly unlike his own and makes oracular responses to the enquiries addressed to him.

796 On a night in the latter part of the month of Dhanu (early 776 in January), a golden image of the goddess is placed on the back [532] of a big decorated elephant, and, amidst the beating of drums, [788] the firing of pop-guns and crackers, is taken out in procession. The elephant with the goddess is supported on each side by [231] elephants whose numbers vary according to the means of the [791] villagers. The *Velichapád* is indispensable and is accompanied by a group of well-dressed women and girls, each carrying in her hand a plate (*tálam*) full of rice and a light placed on the [782] top of it. The festival ends with a display of fire-works, and the ceremony closes with the sacrifice of goats or fowls. On the same principle but on different lines are celebrated various propitiatory and sacrificial festivals in honour of the other [782] aforesaid deities. Generally, after the harvests, the *Velicha-pádu* are taken out in procession to the Hindu houses in each village to receive offerings of a measure of paddy and small coins.

776 *Sásta* or *Ayyappan*.—According to Keralólpathi, Parasu- 778 rama with the object of protecting the newly created country (Kérala) is said to have established many temples and dedicat- [788] ed them to this deity. The most important of these is at Sabarimala in the Chengannur Taluk of Travancore, which

9:Iyer E-4, 5 (ca. 1902-1906)1912
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765 surface. The men, when they return from their baths, bring
782 with them some harialli grass (*karukapullu*); and making an
613 obeisance with the right knee on the ground, they spread some grass near the strip of palmyra leaf, and rings made of the leaf are also worn by all those present. The eldest of the *anandaravans* or nephew then makes offerings of water, turmeric and leaves of the *cherula*, as well as balls of boiled rice with a few gingelly grains and curds poured over it. As boys are forbidden to make the offerings, should the nephew chance to be a boy, it is considered sufficient for him to touch one of the elders who, under those circumstances, makes the offerings. The whole is then covered with a plantain leaf, a lighted wick is waved near it, and some milk is poured under the leaf. This is left undisturbed for some seconds, after which the leaf is tapped gently with the back of the fingers of the right hand; it is then removed and torn in two at its mid-rib, one piece being placed on either side of the *pindams*. And now the ceremony is over for the day. The agnates rise and remove their wet clothing, sometimes even bathe again. The torn cloth is tied round a pillar near the basket covering the leaf, and the leaf is uncovered every day for seven days at the same hour for the performance of the ceremony. At the end of each day's ceremony the offerings of rice balls left are unguarded for a short time to allow the crows to feed on them; after which they are removed by the female members of the *tarawád*, who are junior to the deceased, and the eldest of them carries the offerings to the side of a tank
[825] and throws them into the water. It is believed that if the
[775] crows take them, the spirit is pleased. Should the crows leave
[231] any remains, they must be thrown into the water, as dogs must not eat the offerings.

765 During the seven days the house of the deceased and all
783 its inmates are considered to be under pollution, and the mem-
613 bers of that *tarawád* may not go to any other house nor can
574 members of other *tarawáds* visit them without polluting themselves; but this pollution can be removed by bathing. During this period, however, as a rule, the *káranavan* of the family receives visits of condolence from relatives and friends to whom he is at home on Mondays, Wednesdays and Saturdays.

Here it must be said, that in some cases, the visitors bring with them small presents in money or in kind to help the *káranavan* with the expenditure to which the funeral rites put him.

11: India G-4,5 (1960-1961) 1962 AWll Kerala AWll

and milk products in the State as a result of which people have to lean more heavily on fish and tapioca.

1.36 Among the items of non-food expenditure the significant point is the higher percentage of expenditure devoted to clothing. The neatness and cleanliness of dress worn by the people of Kerala is evident even to a casual visitor to the State.

The Food Gap

1.37 The superior cropping pattern has also brought with it a huge food deficit. In this, Kerala leads all the other States. The current production of foodgrains is estimated at 9.6 lakh tons, whereas requirements on the basis of a norm of 17 ozs. per day would come to about 24 lakh tons, leaving a gap of nearly 14.6 lakh tons. The width of this gap is only partially closed by the consumption of tapioca as part of the diet by poorer sections of the people, although it does form an important second line of defence in the lean years as in 1940's when there was a severe food shortage.

1.38 Wide as the food gap in Kerala is, it has often led to the formulation of solutions which, if given effect to, would be retarding the operation of inherent growth factors in the Kerala economy. Every economy may present some "growth leaders", and development consists in stimulating and invigorating them. The climate and physical formation of Kerala favour the growth of a large number of valuable cash crops. It is this sector to which maximum attention should be devoted. Kerala is better suited to serve the role of an exchange economy which relies for its food requirements on the other parts of India and in return contributes to the economic development of the country by earning valuable foreign exchange through the export of raw and semi-processed commodities.

Other Primary Activities

1.39 Of the other three primary activities, viz., animal husbandry, forestry and fisheries, the former, that is, livestock is rather poorly developed. Due to the poor breed, and the natural deficiency in the livestock feed, the cattle is of poor quality with milk yields much lower than the all-India level. The only exception to this is poultry. Kerala can claim to have the best developed commercial poultry in India, the eggs produced in Kerala going even as far north as Punjab. However, in view of under-feeding and the poor conditions under which the birds are reared, there is still a lot of unexploited potential in poultry development.

1.40 Forestry and fishery are the two other sectors which hold an important place in the economy of Kerala. The forests in the State are rich in some of the valuable species like teak and rosewood. As a result of forest management on scientific lines and the high quality of forest growth, their yield per acre in Kerala during 1955-56 was as high as Rs. 18 against the all-India average of Rs. 5.6. This sector is crucial as a source of supply of industrial raw materials.

1.41 Kerala ranks foremost among the fish-producing States of India. In 1957 total fish landings in Kerala were 3.41 lakh tons. With only 10 per cent of the all-

Chapter 3

Animal Husbandry

23 ANIMAL HUSBANDRY IN Kerala is poorly developed. It stands in sharp contrast to the well-developed agricultural sector. With the exception of poultry, low livestock productivity marks all aspects of animal husbandry. The milk yield in the State is among the lowest in the country. The total production of milk in Kerala in 1956 has been estimated at 1.82 lakh tons,[1] which works out to a per capita production of 1.3 ozs. as against the minimum of 10 ozs. per capita recommended by the Nutritional Advisory Committee of the Indian Council of Medical Research. This is also true of yield of meat from sheep and goat. Consequently, the contribution of animal husbandry to the State income is comparatively low. During 1957-58 the net contribution of livestock to State income was Rs. 12.2 crores, that is, only 3.3 per cent of the State income while for all-India it was about 8 per cent.

Livestock Population

3.2 According to the 1956 Census of livestock, Kerala had a total livestock population of 4,168,000. This consisted of 2,510,000 cattle; 4,88,000 buffaloes; 97,820 sheep; 113,711 pigs; 956,000 goats, fowls and ducks. The number of cows and she-buffaloes in milk per thousand of human population was very low at 30, while the same was as high as 148 in Madhya Pradesh, 123 in Punjab, 150 in Rajasthan (all-India 80). Other major heads of livestock in the same year were sheep (97,820) and pigs (113,711).

3.3 In 1956 there were 838,000 working cattle in the State (Table 20). The significant fact about this is the high proportion of buffaloes to the total working cattle. The buffaloes constituted about one-third of the draught animals. The corresponding all-India proportion in the same year was only 9 per cent. Buffaloes are popular in Kerala as draught animals, because of their superior draught capacity and greater suitability for the puddled type of cultivation. This has an important bearing on the formulation of the future breeding policy.

3.4 Between the Census of 1951 and 1956 the livestock population rose by over 17 per cent in the State as against only 4.8 per cent for the entire country. There has been an all round increase under all the major heads except pigs (—3.6%) and sheep (—77%). A large increase in the livestock and poultry population may be partly due to a higher level of reporting in the Census of 1956 over the previous Census.

[1] *Indian Livestock Statistics*, 1953-54 to 1955-56, Ministry of Food and Agriculture, Government of India.

But much of this increase is the consequence of a greater diversification in agricultural activities with a view to reducing unemployment and under-employment among family labour and raising the family income. Poultry-keeping has, of late, become very popular with the rural families and it is unusual to find families in the rural areas which do not rear at least a few laying birds. Kerala produced 137 million eggs (hen eggs—114 million; duck eggs—23 million) in 1951, and ranked fifth among the States in egg production. Production of eggs is now much higher and may be around 200 million. Kerala is also the biggest exporter of eggs. These are sent as far as Punjab in the north, Calcutta in the east and Bombay in the west and even to foreign countries, mainly Ceylon.

Low Productivity of Livestock

3.5 On an average a cow yields 330 lbs. of milk per year, a buffalo 619 lbs. and a goat 40 lbs. These yield rates compare very unfavourably with those for other parts of India (Table 16).[2] The low productivity of animals is partly due to the poor inherent breed characteristics and partly due to the conditions under which they are reared. The cattle found in Kerala are all of a non-descript type. They are small in size and build. They are stunted in growth. Buffalo in Kerala weighs about half of its counterpart in U.P. or Punjab. The same is true of other livestock too.

3.6 The livestock, especially the bovines, are reared under unwholesome conditions. They are under-fed. The bulk of the ration consists of roughages, mostly rice straw, and is grossly deficient in proteins and other protective properties. The livestock feed available in Kerala is also highly deficient in some of the important bone-building minerals such as calcium and phosphates. This is a direct consequence of a high rainfall which has leached off most of these minerals from the root zones of soils. In the absence of adequate phosphatic and calcium soil amendments, the crops grown in such soils are poor in these minerals. Lack of minerals has a telling effect on the health, build and general condition of the livestock of Kerala. The small size and build are important causes responsible for their low milk yield and poor work output.

3.7 Nutritional deficiencies lead to a number of serious consequences. Poor health results in low vitality and resistance to diseases as well as a low rate of nutritional utilization from feeds. All these factors are responsible for a low level of efficiency and other hazards such as a high rate of mortality and a low rate of fertility. However, realizing the reasons for low productivity, many enlightened farmers have taken to scientific rearing of livestock and have started adding concentrates, such as waste grains, oil cakes and mineral mixtures to the cattle feed. Credit for this goes to the State's Animal Husbandry Department which has been making special efforts to educate the peasantry on the need for adding mineral mixtures to the livestock feed. The Department has been distributing mineral mixtures to farmers at subsidized rates in order to popularise them.

3.8 In view of the very poor quality of livestock in the State there is an urgent need for developing animal husbandry in Kerala. Although animal husbandry

[2] Table 16, appearing on p. 282 of the text, has not been processed -- Analyst

programmes do not create any significant increase in direct employment opportunities, they do help in reducing the degree of unemployment situation within the family. Moreover, some of the animal husbandry activities such as piggery, poultry-rearing, and bee-keeping need little investment to start with and are quick to yield returns.

3.9 Development of animal husbandry on commercial lines by individual rural families may not be possible without adequate State action. Aid should be given for implementing measures of improvement with a view to increasing the efficiency and productivity of the livestock. The aid could be given int he form of easy loans, development of marketing and processing facilities, sale of feed and fodder at reasonable prices, etc. These are discussed in the subsequent paragraphs separately for cattle and other livestock.

CATTLE DEVELOPMENT

3.10 The output of milk from cattle and buffaloes as well as draught capacity can be improved through a scientific breeding programme and the prevention and control of diseases. As stated previously, cattle found in the State are of non-descript types. Unless they are imparted with high productivity genes, any amount of improvement in feeding and rearing will not be of much use beyond a particular stage. It is, therefore, necessary to concentrate on improving the breed of cattle and buffaloes. There are two ways of tackling this problem: (*i*) selective breeding and (*ii*) mass upgrading.

3.11 The former is not feasible, as there may not be enough cattle to start with if rigid norms are employed for selection. There will also be the problem of finding suitable means of disposal of the useless cattle. The practical solution under these circumstances would be to resort to a scheme of mass upgrading according to which the local bulls are to be replaced with bulls of some outside breed, suited to local needs and conditions. To be really effective, the upgrading programme should be made to cover the entire State and should stretch over a span of at least four decades. During this period, no bulls, other than the approved ones, should be allowed to sire.

3.12 The value of the upgrading programme was realized in Kerala a few decades ago. The scheme was introduced on a large scale during the First Plan by starting five Key Village Schemes. The number was raised to 14 in the Second Plan. It is estimated that by 1965-66, it would be possible to cover about a quarter of the eligible milch cattle under the Key Village and Artificial Insemination Schemes. But even though the programme is well conceived and implemented, the NCAER team was left with the impression that the scheme had not made any significant impact in the improvement of cattle and buffalo breeds in the State. Apart from the inadequate coverage of the programme, non-elimination of the local or scrub bulls is a serious problem. For success and effectiveness of the upgrading programme, it is, therefore, necessary, first, to implement the programme intensively all over the State and secondly, competition from the local bulls should also be eliminated by compulsorily castrating all the males before they reach the fourth year of their life. These suggestions may be implemented during the Third Plan.

3.13 The Sindhi bulls which have been selected for the upgrading work in Kerala are scarce these days, and it may be difficult to procure the required number for the proposed programme. The number of bulls needed would, however, be much smaller under artificial insemination than under natural service. The former programme should, therefore, be preferred to the latter. As the State is well served with roads and has a good and efficient transport system, three or four central semen collecting centres would be needed to cover the entire State provided the product is quickly dispatched and properly stored while in transit. The centres may be located at Trivandrum, Trichur, Calicut and Palghat. Bulls should be provided for natural service in remote and out of the way places. The proposed breeding programme would need buildings, equipment and livestock for artificial insemination centres. These programmes would require an investment of Rs. 8.76 lakhs over the Third and Fourth Plan periods.

Prevention and Control of Diseases

3.14 Prevention of diseases peculiar to livestock and a machinery for their control is a pre-requisite for proper development of animal husbandry. Under the present circumstances, where there is a heavy incidence of disease and high mortality rates, any enterprise in the field of animal husbandry is fraught with high risks ; and farmers are hesitant to hazard investment on any animal husbandry business. The major share of burden will naturally have to be borne by the Government.

3.15 For effective prevention and control of diseases, it is necessary to have an adequate number of well-staffed veterinary dispensaries and hospitals. These institutions should, as far as possible, render free treatment. Under the conditions prevailing in Kerala, it is considered necessary to have at least two veterinary hospitals in every taluk and one dispensary or first-aid clinic in every Panchayat. Measured by this norm, the existing facilities are utterly inadequate. While there are 55 taluks and 892 Panchayats in Kerala, the total number of hospitals and dispensaries,[1] at the end of 1958-59 were only 45 and 69 respectively. (Table 21)[2].

3.16 Two factors are responsible for this situation : (*i*) shortage of personnel and (*ii*) paucity of funds. With the opening of the veterinary college at Trichur, the situation may be expected to improve with regard to the personnel, provided adequate funds are made available. The State should try to achieve the above norms by the end of the Fourth Plan. Investment on the proposed 20 additional hospitals and 723 dispensaries would be about Rs. 77.3 lakhs.

POULTRY DEVELOPMENT

3.17 Though Kerala has the best developed commercial poultry industry in the country, conditions under which the birds are reared are far from satisfactory. The birds are not adequately fed, and consequently they resort to scavenging. A good

[1] Includes Stockman's stations and Inspector's stations.
[2] In 1960 the numbers were 65 and 133 respectively.

11: India G-4, 5 (1960-1961) 1962 AW11 Kerala AW11

part of poultry population still consists of the indigenous types despite the introduction of high yielding exotic breeds such as Rhode Island Reds and White Leghorns in the early thirties. The local breeds give 50 to 60 eggs a year, while the average by the White Leghorn and Rhode Island Reds in the Government farm is 186 and 172 eggs respectively.[1] This can convey some idea of the magnitude of unexploited potential in the poultry industry.

3.18 Commercial poultry-rearing as a subsidiary occupation by the farmers has come to be recognized as the quickest and the easiest way of increasing farm incomes and providing employment to the under-employed. In view of these advantages, poultry industry has a special appeal in Kerala. It has been estimated by some experts that through replacement of indigenous birds with the exotic ones, the contribution from this sub-sector to the total State income could be more than doubled. This would be possible in less than five years, provided the pullets of desired types are made available to the farmers in adequate numbers at a low cost. The State should strive to achieve this by opening a large number of poultry extension centres. It is suggested that by the end of 1965-66 there should be at least one poultry extension centre in each Community Development Block. During the Third Plan, 143 additional centres may be opened and all these should work in close association with the block cooperatives. An investment of Rs. 35.75 lakhs would be needed to start the proposed centres.

3.19 Duck-rearing is done only on a small scale in the State in spite of the fact that conditions in most parts of Kerala are very well suited for commercial duck-keeping. Vast inland water resources and the abundant fauna in them is an ideal condition for large scale commercial duck-rearing. There is good demand for duck products particularly in Calcutta and Ceylon but this export potential could be developed only when the fowls are bred in sufficiently large number. It is, therefore, suggested that this potential should be fully exploited and the State should take adequate steps in the matter. In order to make the programme economical, some of the poultry development blocks may include multiplication of suitable duck breeds for distribution. Efforts may be made to select the best from the local birds and rear them for producing pullets for distribution.

Rearing of Goats

3.20 Goat-rearing under stall-fed conditions is customary in Kerala. This is quite contrary to the practice found in other parts of the country, where the goats are let out during the major part of the day for free browsing. Rearing of goats, as it is practised in Kerala, does not lead to dangers such as suppression of vegetation, crop destruction, etc.

3.21 Goats are reared both for milk and meat. The average milk yield per goat is low, 40 lbs. per annum, as against the all-India average of 127 lbs. (Table 16). This is due to poor management and general malnutrition, but could be easily raised to the all-India level with improved feeding and better care. As a matter of fact it is not unusual to find goats yielding as high as 400 to 500 lbs. of milk in urban households and this is due to better management.

[1] *Administration Report of the Animal Husbandry Department*, 1957-58, Government of Kerala, 1958.

11: India G-4, 5 (1960-1961) 1962 AWII Kerala AWII

urban households and this is due to better management. Scientific goat-rearing should be encouraged in the State by educating the people about the techniques and economics of goat-rearing. For the sake of convenience and better implementation, goat development may form a part of the Key Village Programme. This would effect saving in costs and also reduce the need for additional personnel. Through this programme, the local stock can be upgraded with the desirable outside milk breeds as Bikaner or Jamunpari after studying their performance and suitability.

Rearing of Pigs

3.22 Pig-rearing is not popular in Kerala, even though conditions such as climate and rainfall are favourable. The pig population has even fallen by 3.6 per cent during the period 1951–56. Piggery development did not receive any attention during the First and Second Plans and this, perhaps, is partly responsible for the decline of interest in pig-rearing in Kerala.

3.23 Pig-rearing needs to be encouraged in the State, as it is the quickest means of increasing meat production. But there has not been any research or studies on pig-rearing which could be applicable to the conditions prevailing in Kerala. It is suggested that the State should undertake research on these problems without any delay. In the meantime, this avocation may be developed on the lines suggested by the Department of Animal Husbandry for the Third Plan through the creation of piggery development blocks. In addition, the State should also provide certain facilities such as the supply of feed, provision of processing, grading, storage and marketing facilities and supply of credit on easy terms.

Supply of Feed

3.24 As a result of measures proposed for agricultural development, the production of cereals, pulses and oilseeds would increase by about 100 per cent during the next decade. Since livestock, especially the bovines, are fed on byproducts of agriculture (stalk, straw, husk, bran, etc.), the availability of basic feeds would also increase. Rice straw, the principal roughage in the State even may be surplus. Concentrates will, however, continue to be in deficit despite the large likely increase in the output of pulses and cereals. The situation of course, would change if oilcake, the byproduct of oil-crushing industry, is not allowed to move out of the State. This is a matter of all-India policy as the coconut oilcake is an important item that is marketed outside the State in large quantities and is even exported. Assuming, therefore, that situation regarding oilcakes does not alter, the State should do the needful towards making concentrates easily available to the farmers. This deficiency could partly be reduced by supplying concentrates (ready-to-feed mixtures) in dehydrated form. Different ready-to-feed mixtures should be evolved for cattle, poultry and other livestock. The composition and formulae for such mixtures should be worked out on the basis of nutritional experiments. In anticipation of demand for the mixtures, it is suggested that three ready-to-feed mixture factories of 200,000 tons capacity each, may be started in the State during the Third Plan.

11: India G-4, 5 (1960-1961) 1962 AW11 Kerala AW11

of these schemes is being expanded to handle 250 maunds per day during the Third Plan. Under these schemes, milk from the surrounding villages would be collected and pasteurized before bottling them for sale. The schemes will serve a two-fold purpose: (i) they will give incentive for a higher production of milk in the rural areas by offering fair prices and (ii) they will provide hygienic milk to the urban population at a reasonable price. The unscrupulous middleman will be eliminated by this process.

3.29 The dairy development programme of this type needs to be taken up on a much larger scale than at present. This is necessary to provide an outlet for the likely increase in milk production and for making hygienic fluid milk available to the urban people. Owing to acute shortage of clean and pure milk in the urban areas, milk supply schemes of the type discussed above might prove a great success. It would be good if all the urban areas with a population of over 30,000 are served with such schemes. According to 1951 Census there were 13 towns in Kerala with a population exceeding 30,000. At the end of the Second Plan, 11 among these were still without any milk scheme. It is, therefore, suggested that these milk schemes should be organized in all these towns. The capacity, investment required, etc., for these schemes is given in Table 22.*

3.30 Many of the dairy units proposed here may find it difficult to get sufficient quantities of milk from the surrounding areas owing to the poor yield of animals and low marketable surplus with the farmers. In order to justify collection, marketing and sales organization of even the smallest size, it is considered necessary to have a handling capacity of 150 maunds per day. In case sufficient milk is not available, which is likely to be the case at least in some centres, a part of the capacity may be utilized for bottling reconstituted milk. Reconstituted milk can be of various types depending upon the fomulae. Milk powder is a common ingredient in all the types. A survey of consumer preference and tastes may be conducted before choosing the type, and part of the demand for fluid milk may be met in this way. Such a survey is essential before embarking upon the actual production of reconstituted milk because the new product may meet considerable consumer resistance in its initial stages. Propaganda and other measures to popularize the use of reconstituted milk will also have to be taken up side by side.

3.31 In smaller towns, that is, those with less than 30,000 population, cooperatives for supply of milk, may be organized with consumers or producers. There were 12 such societies in 1958. These societies should be encouraged.

3.32 Munnar is a region which possesses the potential for growth into a large scale commercial dairy farming centre. Many exotic cattle breeds[1] are thriving in the region. The performance of some of the herds maintained by a few sterling tea companies is said to be of a high order and compares favourably with that of similar herds maintained in the countries from which these cattle are imported. It is suggested that the Department of Animal Husbandry should further investigate the economic feasibility of commercial dairying in the Munnar region. If the investigation reveals prospects, the State may organise a few such dairy farms in the public

[1] Jersey and Holstein.

* [Table 22 appearing on p. 286 of the text, has not been processed – Ankahut]

11: India G-4, 5 (1960-1961) 1962 AWII Kerala AWII

sector. The dairy farms may also take up the manufacture of high value items such as creamery products and *cheddar* cheese.

Processing and Marketing of Poultry Products

3.33 Proper disposal of poultry products is also a pressing need. At present there are a number of private as well as cooperative organizations in the Travancore-Cochin area for collecting and marketing poultry products. Some of them have even inter-State connections. These organizations have rendered satisfactory service to the poultry industry in Kerala. Credit goes to them for having developed export demand for poultry products of the State. All these organizations, however, are faced with serious limitations to further expansion and more efficient working. Their main problem is inadequate working capital. The other difficulties are: (*i*) lack of cold storage facilities, (*ii*) inadequate availability of transport aids and containers for safe transit, and (*iii*) lack of technical guidance. The State should take steps to remove these difficulties. It is suggested that the State should encourage municipalities to construct cold storage godowns. This would benefit not only the poultry industry, but also other activities such as horticulture, meat packing and fisheries. The other needs could be largely looked after by the Development Blocks. It is also suggested that the poultry cooperatives should be asked to grade eggs before marketing them.

3.34 It may not be possible to find market either inside or outside the State for all the marketable surplus in poultry products in the future. This fear is justified in view of the fact that significant development in poultry industry has taken place in some of the egg-importing States such as West Bengal, Madras, Punjab and Bombay under the Second Plan. It may, therefore, be expected that the production of eggs and other items in these States would increase considerably by the end of the Third Plan. Such a development would hit Kerala's exports adversely. In order to guard against such consequences, it is desirable that alternative means of disposal of eggs and poultry meat are planned now. The best method would be to set up a combined egg powder-cum-meat packing plant in a convenient location somewhere in the Travancore-Cochin area. The in take of the plant may be of the order of 30,000 eggs and 500 to 1,000 birds per day. The birds may be processed for preservation and packed in polyethelene bags in convenient numbers. A product like this is bound to be popular all over the country. The plant would need an investment of Rs. 3 lakhs.

3.35 Animal husbandry needs State support and help in other ways too. Loans from the State Government to both processors and cooperatives would be of a great help. The average farmer is at present unable to take to livestock-keeping as a subsidiary occupation on account of lack of funds for investment as well as for working capital. Normal farming agencies like banks and cooperatives do not serve them because of their non-credit worthiness and the uncertain nature of livestock business. Seeking the help of local money-lenders would be too expensive for these ventures. Only the State can solve the problem of rural credit in a situation of this type by making available larger *takavi* funds, arranging for loans through banks and cooperatives, by agreeing to share the risks, etc.

11: India G-4, 5 (1960-1961) 1962 AWII Kerala AWII

in the following table :

Type of Plantation	Third Plan		Fourth Plan		Fifth Plan	
	Physical targets (acres)	Financial targets (Rs. lakhs)	Physical targets (acres)	Financial targets (Rs. lakhs)	Physical targets (acres)	Financial targets (Rs. lakhs)
Teak	20,000	15.0	40,000	30.0	60,000	45.0
Softwood	15,000	15.0	30,000	30.0	50,000	50.0
Grassland Sholas[a] (Eucalyptus grandis)	10,000	75.0	15,000	102.5	—	—
Burma Bamboo[b]	1,000	0.5	2,000	1.0	3,000	1.5
Cashewnut	1,000	0.5	2,000	1.0	3,000	1.5
Casurina and Matchwood on Coastal Perrumbavur	1,000	2.0	2,000	4.0	3,000	6.0
Wattle	5,200	7.8	—	—	—	—
TOTAL	53,200	115.8	91,000	168.0	119,000	104.0

[a] All grassland sholas would be afforested by the end of the Fourth Plan.
[b] Most of these plantations in the Fourth and Fifth Plans will be in the private forests acquired in Malabar.

SOME TECHNICAL IMPROVEMENTS

4.54 The existing logging techniques and modes of extraction entail a lot of wastage of timber. Since there is a general shortage of timber, supply of timber from the forest areas could be enhanced by incorporating some of the improvements disscussed below.

Proper Seasoning Facilities

4.55 A large amount of timber at present goes waste or is used as fuel. This could be more economically utilized if proper seasoning and preservation facilities are introduced. Seasoning and preservation plants should be encouraged in all areas where there is a concentration of saw mills. This would make possible utilization of a large variety of secondary timber through upgrading them and making them commercially profitable. Government departmental rules may have to be modified to insist on the use of seasoned timber in place of the more valuable teak timber in all Government construction works.

Better Logging Techniques

4.56 The present methods of logging need to be mechanized, especially as a good network of roads exists through which mechanical saws, etc., can be taken to the actual coupes. The techniques currently employed are antiquated and involve a lot of wastage. With improved techniques, the extent of wastage could be reduced. The extraction of timber by elephants in Malabar should be continued as it has proved to be cheap and quite efficient.

11: India G-4, 5 (1960-1961) 1962 AWll Kerala AWll

TABLE 17

GROSS VALUE OF OUTPUT FROM ANIMAL HUSBANDRY IN KERALA

(Rs. lakhs)

Item	1955-56	1956-57	1957-58
Milk consumed as such	531	540	561
Other milk products	593	604	608
Beef	56	58	62
Buffalo flesh	18	19	20
Mutton	93	97	98
Hides and Skins	29	30	31
Bones and Horns	6	7	7
Eggs	84	121	136
Poultry	72	78	84
Dung	321	381	394
Increment in stock	96	113	116
Miscellaneous	4	4	3
GROSS VALUE OF OUTPUT	1903	2052	2120

SOURCE: *Regional Income of Kerala* (At current prices) 1955-56 to 1957-58: Government of Kerala (1960).

TABLE 18

LIVESTOCK POPULATION OF KERALA—MAJOR CATEGORIES, 1951 AND 1956

Category	Total		Percentage of increase (+) or decrease (—) in 1956 over 1951
	1951	1956	
Cattle	2,151,522	2,510,376	+ 16.7
Buffaloes	444,368	487,553	+ 9.7
Sheep	423,513	97,820	— 76.9
Goats	423,345	955,570	+ 125.7
Horses and Ponies	518	1,690	+ 226.2
Mules	14	2	— 85.7
Donkeys	689	1,415	+ 105.2
Pigs	117,932	113,711	— 3.6
TOTAL LIVESTOCK	3,561,901	4,168,237	+ 17.1
Fowls	3,854,319	6,462,799	+ 67.6
Ducks	263,147	322,085	+ 26.2
Others	..	161	..
TOTAL POULTRY	4,117,466	6,785,045	+ 65.1

SOURCE: *Statistical Outline of Kerala State, 1960.*

[Pp. 280-282 not Processed]

11: India G-4, 5 (1960-1961) 1962 AWll Kerala AWll

TABLE 19

NUMBER OF COWS AND SHE-BUFFALOES IN MILK PER THOUSAND POPULATION IN KERALA AND OTHER INDIAN STATES

State	*Number of cows and she-buffaloes in milk in 1956*	
	Total number	*Rate per thousand population of the State*
Andhra Pradesh	3,017,305	89
Assam	1,012,055	96
Bihar	2,592,908	63
Bombay	4,277,810	81
Jammu & Kashmir	318,105	666
Kerala	457,711	450
Madhya Pradesh	4,087,860	148
Madras	1,716,664	53
Orissa	1,950,792	91
Punjab	694,638	45
Rajasthan	2,173,132	123
Uttar Pradesh	5,149,353	150
West Bengal	1,428,996	76
Delhi	57,156	27
Himachal Pradesh	233,079	208
Manipur	32,394	52
Tripura	67,792	103
Andaman and Nicobar Islands	1,416	35
ALL-INDIA	*31,806,171*	*89*

TABLE 20

CATTLE AND BUFFALOES IN KERALA (CATEGORIES) 1956

Categories	*Cattle* (in '000 numbers)	*Buffaloes* (in '000 numbers)	*Total* (in '000 numbers)
1. Males over 3 years	680	279	899
(i) Breeding	11	4	15
(ii) Working	571	268	839
(iii) Others	38	7	45
2. Females over 3 years	1008	168	1944
(i) Breeding			
(a) In milk	398	63	461
(b) Dry and not calves	577	65	642
(ii) Working	8	11	19
(iii) Miscellaneous	19	3	22
3. Young stock	814	94	1008
TOTAL	2536	515	3051

SOURCE: *Indian Livestock Statistics, 1953-54 to 1955-56*, Ministry of Food and Agriculture.

TABLE 21

NUMBER OF VETERINARY INSTITUTIONS IN KERALA STATE (1958-59)

District	*Hospitals*	*Dispensaries*	*Stockman's stations*	*Inspectors' stations*
Trivandrum	5	3	..	..
Quilon	5	7	..	..
Alleppey	6	5	..	..
Kottayam	5	4	..	..
Ernakulam	9	12	..	..
Trichur	7	13	4	..
Palghat	5	8	..	8
Kozhikode	2	10	..	..
Cannanore	1	7	..	3
TOTAL	45	69	4	11

SOURCE: Director of Animal Husbandry, Trivandrum.

12:Peter E-5 (1939, 1949) 1963 AWII Kerala AWII
Kammalahs

the cross-roads of the main Shoranur-Palghat highway of the road to Lakkidi, a few furlongs down the latter, on the right hand side. In contrast to the Thandan houses to which we had been, although not to the Tiya (Thiyya) houses of the Cochin labourers, the place looked rather miserable. It was a thatched palm-leaf house, standing on a red laterite loam platform, in the middle of some paddy fields. There were signs about that these Tathans were not only goldsmiths but that they now also practised agriculture. There was paddy lying about to dry in heaps in the yard, and there were stalls for bullocks at the back.

We interviewed a man called Raman and his brother Kochen, aged fifty four and fifty two respectively, who lived polyandrously with their wife, Kurumba, forty five years old. They seemed rather impressed by us, and were reluctant to speak. They observed the outward forms of hospitality, however, and presented us with fresh coconuts for us to drink the milk.

Raman told us that the household's name was Padijarehil, meaning "Western", and that it was part of five others which constituted the Uzhugaparekil *tarawad*. The latter was *makkathayam*, as we expected, and exogamous, as was also their *kiriyam*, although, here too, they only observed the rule in matters which concerned those members of it whom they knew. They had two and a half acres of paddy fields, in simple *verumpattam* lease from a Nambudri Brahmin janmi called Kodiertha-mana. For this they paid five rupees a year and handed in a part of the harvest – five hundred *parahs*, I have in my notes, three hundred from the *kanni* crop and two hundred from the *magaram*.[1] As it was an ordinary *verumpattam*, there was no renewal fee. They had a deficit this year of forty *parahs* (roughly lbs. 866⅛) and they were wondering what they could do to make it good. Last year they had done "other work" (presumably such as hiring themselves out as labourers) in order to raise the cash needed to compensate for the deficiency in grain, and they might do the same thing now. When I asked them what kind of goldsmith's work they did, they laughed and said that they had given this up; how could they carry on with their traditional profession, they asked, when the sovereign which was once worth Rs. 25 had reached Rs. 77?

Raman and Kochen had had eleven children in their polyandrous

[1] This again seems too much. It is equivalent to lbs. 10,830 (1 Palghat *parah* = 10 *edengalis* = 40 *nalis* (1 *nali* = *tolas* 21⅛ in s. Walluvanad and Palghat) = 866,40 *tolas*; as 40 *tolas* = 1 lb. in s. Malabar, 1 *parah* = 866,40 : 40 = 21⅛ lbs and 500 = lbs 10,830).

13:Thurston & Rangachari E-4, 5 (no date) 1909
AW11 Kerala AW11
Nayar

of the same caste, then decorates the girl by putting on anklets, etc. The purôhit (officiating priest) called Elayath (a low class of Brâhmans) then gives the tâli to the Mânavâlan, and the family astrologer shouts muhurtham (auspicious hour), and the Manavâlan, putting his sword on the lap, ties the tâli round the neck of the girl, who is then required to hold an arrow and a looking-glass in her hand. In rich families a Brâhmani sings certain songs intended to bless the couple. In ordinary families who cannot procure her presence, a Nâyar, versed in songs, performs the office. The boy and girl are then carried by enangans to a decorated apartment in the inner part of the house, where they are required to remain under a sort of pollution for three days. On the fourth day they bathe in some neighbouring tank (pond) or river, holding each other's hands. After changing their clothes they come home, preceded by a procession. Tom-toms (native drums) and elephants usually form part of the procession, and turmeric water is sprinkled. When they come home, all doors of the house are shut, and the Manavâlan is required to force them open. He then enters the house, and takes his seat in the northern wing thereof. The aunt and female friends of the girl then approach, and give sweetmeats to the couple. The girl then serves food to the boy, and, after taking their meal together from the same leaf, they proceed to the booth, where a cloth is severed into two parts, and each part given to the Manavâlan and girl separately in the presence of enangans and friends. The severing of the cloth is supposed to constitute a divorce." "The tearing of the cloth," Mr. Fawcett writes, "is confined to South Malabar. These are the essentials of the ceremony, an adjunct to which is that, in spite of the divorce, the girl observes

13:Thurston & Rangachari E-4, 5 (no date) 1909
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Nayar

of them represent devils or some kind of inferior evil spirits, and dance madly under the influence of the spirits which they represent. Then comes the Arayan as on the previous day with his little procession, and lastly comes the blacksmith with the sword. The procession in the evening is a great affair. Eight elephants, which kept line beautifully, took part in it when I witnessed it. One of them, very handsomely caparisoned, had on its back a priest (Mūssad) carrying a sword smothered in garlands of red flowers representing the goddess. The elephant bearing the priest is bedizened on the forehead with two golden discs, one on each side of the forehead, and over the centre of the forehead hangs a long golden ornament. These discs on the elephant's forehead are common in Malabar in affairs of ceremony. The Māppilla poets are very fond of comparing a beautiful girl's breasts to these cup-like discs. The elephant bears other jewels, and over his back is a large canopy-like red cloth richly wrought. Before the elephant walked a Nāyar carrying in his right hand in front of him a sword of the kind called nāndakam smeared with white (probably sandal) paste. To its edge, at intervals of a few inches, are fastened tiny bells, so that, when it is shaken, there is a general jingle. Just before the procession begins, there is something for the Tiyans to do. Four men of this caste having with them pūkalasams (flower kalasams), and five having jannakalasams, run along the west, north, and east sides of the temple outside the enclosure, shouting and making a noise more like the barking of dogs than anything else. The kalasams contain arrack (liquor), which is given to the temple to be used in the ceremonies. Members of certain families only are allowed to perform in this business, and for what they do each

31: Slater S-5 (1916-1917) 1918 AWI India
Kerala AWII

243 Area yielding one crop—205·23 acres.
Area yielding two crops—448·01 acres.
There are a few acres yielding three crops, but only two crops are assessed.

There are different kinds of paddy, each having different periods of growth, and specially suited to particular soils. The fields are manured and in some cases slightly ploughed just before the rains in summer. The south-west monsoon usually begins in June and lasts for four months. As soon as the rain comes, lands are ploughed and paddy is sown in particularly favourable areas. Then all the fields of the farmer are well ploughed and manured; the seedlings are replanted over the whole area after a growth of twenty-eight days. Some kinds of paddy grow for sixty days, others eighty and ninety days. The system in which no replantation takes place is also in much vogue. The fields are protected from animal or bird pests; after a period of at most three months the paddy is mown by agricultural workers who separate the paddy from the stalks.

Another crop is also generally sown during the north-east monsoon season (October and November) which usually gives rain for about one month.

[407] The ploughs used are primitive and old-fashioned. The furrowing is done in this wise:—a flat piece of iron sharpened at one end is attached to a wooden frame with a handle; this handled frame is attached by means of a pole to a yoke which is placed on the neck of a pair of oxen or buffaloes; the worker then holds the handle and drives the oxen round and round the field until the whole field is well furrowed over. This is done *before* the heavy rain, when the ground is softened, but not under water. The sod is then crushed by means of sticks, this being generally done by females. The women walk in a row, beating the sod to and fro with heavy sticks held in one hand. After the field has been well watered by rains it is once more worked over by means of a log of wood (levelling board) drawn by oxen.

[412] The other agricultural implements used are the sickle, a big knife and spades.

231 *Stock.*—The following is the official census of the stock:—

Working oxen	245
Cows	289
Male buffaloes	361
Cow buffaloes	20
Young stock—	
Calves	169
Young buffaloes	7
Horses	2
Donkeys and mules	22
Sheep and goats	583

Oxen are used to drag carts, and for ploughing the fields. Most of the oxen here appear to be lean and weak; especially those used in ploughing. Cart-drawing oxen are better.

234 Cows are used for milking only, though the Muhammadans of the locality are not averse to eating beef now and then. The milk, buttermilk and ghee of the cow are in great demand especially among the Brahmans who cannot do without them; the lower

31: Slater S-5 (1916-1917) 1918 AWI India
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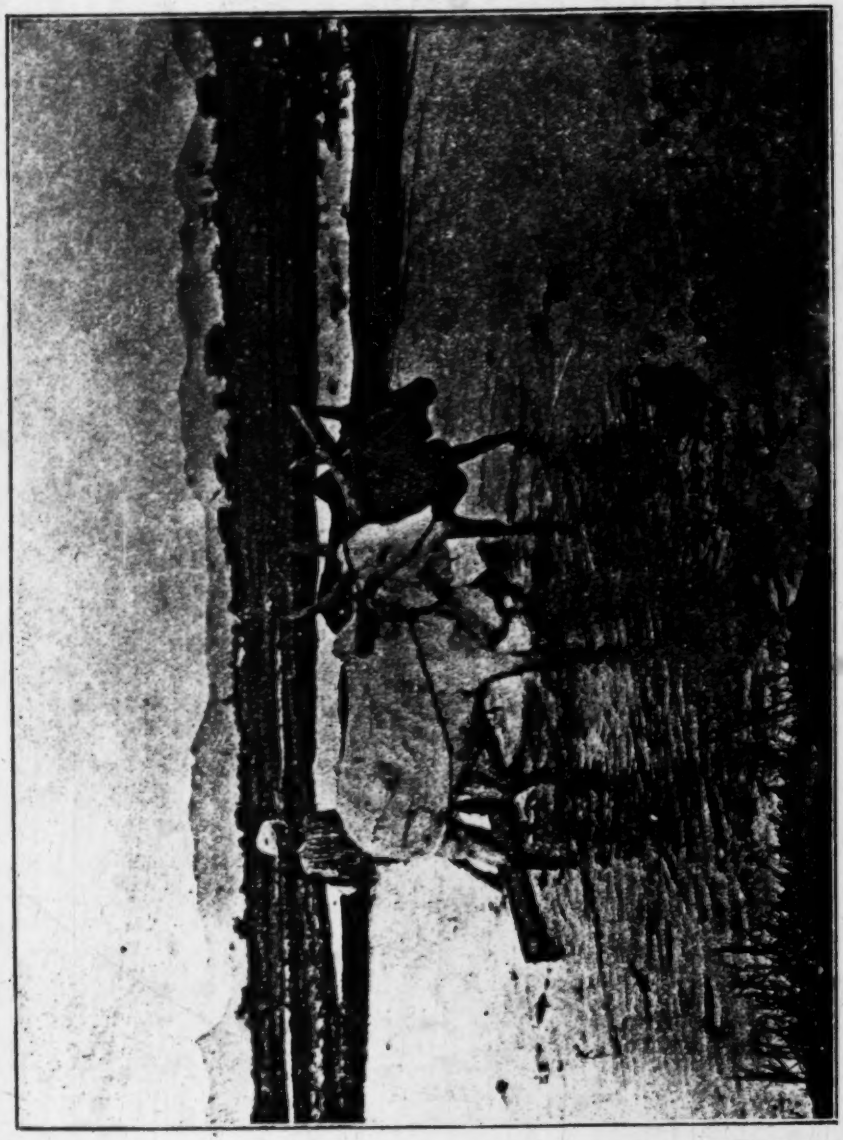

LEVELLING BOARD AT WORK. Photo by Agricultural College.

[facing page 130]

31: Slater S-5 (1916-1917) 1918 AWI India
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234 castes very rarely use these products. The cows too are not brought up on a scientific basis, and are consequently of a weak [804] build and generally yield from 4 nalis * to 6 or 8 nalis of milk per day.†

Male buffaloes are used in ploughing and sometimes to draw loaded carts. These too are of weak build.

Cow buffaloes are used mostly for milking, but sometimes in ploughing. The milk they yield is greater in quantity but inferior in quality to that of the cows.‡

231 Very little care is taken of the young of the above species. The young calf or calf-buffalo is not usually reared with the object of getting strong or vigorous oxen or buffaloes, but allowed to grow haphazardly. Some die off young, and especially the buffalo-calf since the buffalo can be milked without its young and not so the cows.§ The official figures in this respect (vide above) are instructive. The usual practice is to buy cows or buffaloes from a fair for milking purposes and to dispose of them, buffaloes especially, unless needed for ploughing, when the milk dries up.

The only use to which the horse is put is to drive jutkas, but as jutkas are rare in this village, horses are seldom seen here.

Donkeys and mules too are few.

Sheep and goats are used for their mutton which is in demand among the lower castes, but more for their milk, which is considered to be medicinal.

Pigs are reared for their flesh by the local Christians; the Muhammadans consider it to be a sacrilege even to utter the name.

Cows, oxen and buffaloes are made to stand in stalls, two or more being allowed to be in the same stall. Bundles of rice straw form the chief food, but green grass is used during the rainy season. Rice dust and poonac (copra from which the oil has been extracted) mixed in water is given. Cows are let loose during the daytime under care of a keeper to feed in the fields or near the hills.

241 Cattle-dung mixed with cattle urine is used as manure in the paddy fields. This is scattered in the fields during the hot season 237 (April-May). The percentage of cattle-dung will approximately be 25 per cent of the total manure used. Dung is also used as fuel. Women are becoming averse to making varatties and use more wood.

Sheep dung is sometimes used.

241 But green manure consisting of leaves of certain plants and trees is scattered in the fields after they have been well ploughed in the first fall of the monsoon rains. Green manure is never grown, but is obtained from the neighbouring hills.

351 Every house without exception has a compound big or small surrounding it in which there are coconut palms, arecanut palms, mango trees, jack fruit trees, plantains, etc., and sometimes pepper. During the hot months (March-April-May) vegetables

* [1 nali (nari or nazhi) = ¼ of a Madras measure and very nearly = 9 fluid ounces or nearly half a pint.—Ed.]

† I.e., one or two quarts of milk per day. A Madras cow yields up to five quarts per day.

‡ [I.e., it is less valued. Buffalo's milk is very rich.—Ed.]

§ [It is a fact that an Indian cow refuses to give milk without the calf. If the calf dies the dairyman stuffs the skin and makes an imitation calf. This serves the purposes. —Ed.]

31: Slater S-5 (1916-1917) 1918 AWI India
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(7) pestle and mortar for husking rice, 412

(8) (for coconut cultivation) a long broad knife with blade and handle each 1 foot long (this serves all purposes),

(9) an implement intermediate between an axe and mamoti, with a thick sharp blade, and a fairly long handle, used for cutting wood, etc.,

(10) a basket, with ropes attached at both sides, worked by two men, to transfer water from a tank or from one field to another,

(11) a form of picotah, worked by a man standing on a platform inside the well, with his hands,

(12) the ordinary bullock lift,

(13) a sharp rod fixed in the earth for removing the outer cover of the coconut,

(14) ropes tied circularly for the purpose of climbing the coconut tree.

Stock— 231*

Working oxen	922*
Cows	220
Male buffaloes	503*
Cow ,, ...	221
Young stock	1,103
Horses	7
Donkeys and mules	...
Sheep and goats	1,305
Pigs	20

There are 112 carts.

The cattle are fed on dry paddy straw, coconut fodder, waste powdered rice mixed with water, and grass in the winter season. The feeding of cattle is very carelessly done. They keep their skins and bones only.

Manuring.—Cattle dung is used for three purposes :— 237

(1) For cleaning the whole house. Hindus believe that the sprinkling of cattle dung water purifies the house. Consequently, every day every house is thus cleaned.

(2) For fuel. Chaff mixed with straw and dung is dried and burnt for culinary purposes. All the dung from cows kept by the non-agricultural classes (nearly every family of means keeps a cow for milk) is used in the above ways.

(3) The dung produced among the agricultural classes is used for manure, not for paddy or coconut, but for the cultivation of vegetables. Very little dung is used for the cultivation of chief crops. The wastage is also large. Perhaps one-fourth of the total dung is used for manuring vegetables. All the rest is used as stated above or wasted. A small portion of the cattle urine is collected in pots and used as manure for vegetables, but nearly all is wasted. [241]

Fish and muddy water are used as manure for coconuts, but not to a very great extent, and only by the three rich kanomdars who themselves cultivate. Some also use salt for manure, when they plant coconut. This is very advantageous, and sometimes 241

* [This shows the very high proportion of one working ox or buffalo for each acre of cultivated land, a proportion accounted for by what is stated about the condition of the animals.—Ed.]

31: Slater S-5 (1916-1917) 1918 AWI India
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651

The desam contains 130 survey fields in all. The settlement was first introduced in this desam in fasli 1313.

The following table shows the nature and extent of the holdings and revenue as given in the 'A' register of the village:—

Holdings and Revenue.

	Occupied area.								Deduct waste remitted.		Remainder charged.			
	Wet.		Garden.		Dry.		Total.							
Fasli.	Extent.	Assessment.	Extent.	Assessment.	Extent.	Assessment.	Extent.	Assessment.	Extent.	Assessment.	Actual cultivation.	Waste charged.	Total extent charged.	Assessment.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	ACS.	RS. A.	ACS.	RS.	ACS.	RS. A.	ACS.	RS. A.			ACS.		ACS.	RS. A.
1313	445·27	2,226 5	209·43	502	197·16	157 14	851·86	2,886 3	...	...	851·86	...	851·86	2,886 3

	Second crop.				Deduct remission other than waste already shown in column 11.					Amount collected within year.	
Fasli—*cont.*	Extent.	Charge.	Miscellaneous revenue.	Total ryotwari demand excluding waste remitted.	Occasional remission other than for waste.	Other remissions and deductions.	Total.	Net demand for the year.	Arrear.	Current.
	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
	ACS.	RS. A.	RS. A.	RS. A.		RS. A.	RS. A.	RS. A.		RS. A.
1313	8·96	13 11	96 5	2,996 3	...	851 12	851 12	2,144 7	...	2,144 7

312 The ryots mostly depend on the mercy of the monsoon for the watering of fields. But throughout the summer season beginning from the end of December to the end of July, watering is carried on from wells and tanks, especially in the case of garden cultivation. Tanks and wells are not sufficient and those existing are not deep enough and frequently dry up towards March.

241 The chief crops cultivated are coconut, arecanut, paddy, gingelly, pulses, horsegram, plantain and jack.

231 Pasturage is obtainable for the cattle on the unoccupied dry lands. Water for the cattle is obtained from channels, private tanks and wells.

31: Slater S-5 (1916-1917) 1918 AWI India
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651 On registered double crop land, the charge for the second crop has been consolidated at one-quarter of the single crop assessment. For occasional second crop on land assessed as single crop, the charge will be one-half the single crop assessment.

231 The stock as ascertained by personal enquiry are as shown below. The account of the stock of Kothachira was not obtainable from the village officials, for it is lost. I have tried my best to make the statement complete and exhaustive. But this is a period of extreme fatality to the stock in these parts. Daily one or more are dying. In a single family there died twenty within forty-five days leaving only one or two pairs. The numbers are—

Bullocks	240	
Cows	403	
Buffaloes	287	
Young stock	374	under 4 years.
Goats	712	
[407] Ploughs	414	
Carts	5	
Oil mills	4	

A comparison with the figures for the census of 1899–1900 for the whole amsom of Kothachira (the three desams of Kothachira, Peringode and Mattur) shows an all-round decrease of about forty per cent. I believe the causes of this great reduction to be partly a succession of very bad seasons for stock, and partly selling off under pressure of poverty.

Cattle feeding.—Bullocks and working oxen and buffaloes, besides being left to graze on the unoccupied dry lands and on cultivable areas when they are lying fallow, are given straw and 'kanchi,' water mixed with the dusty part of rice and 'punac' or oil-cake. For cows and young stock only straw is given besides grazing. Goats are simply left to graze. Straw is given to the above working stock after they are housed in their sheds for the evening. The 'kanchi' water is given in the morning just before leading them into fields and in the afternoon after their work is over. They are led to be washed after field work. Bullocks and buffaloes are the working stock.

The breed.—The cattle are very second rate in their breed. The most healthy working oxen grow to a height of from three to three and a half feet and their strength is not half as much as the oxen employed by the firms of Madras. The cow is a pitiable thing ordinarily two to three feet high and milking on an average from a half to one Madras measure per day.* Comparison, it need hardly be said, with Madras cows is odious. They can be milked for only six months. The best come into milking again within a year, but many only within two years.

241 *Manure.*—Almost all the cattle dung is used for manure. One per [237] cent perhaps goes for purposes of washing floors, etc. The cattle urine is allowed in some places to flow into the dung-pit, but no systematic attempt is anywhere made to utilize it to the best advantage. Besides this, burnt ashes and green manure are in common

* [A Madras measure is 62·5 fluid ounces = 3¼ pints. A fair Madras cow in full milk yields about 3¼ Madras measures per day, i.e., 5 quarts.—Ed.]

31: Slater S-5 (1916-1917) 1918 AWI India

lings for the second crop are then planted and will be ready for harvest in December or January. In double-crop wet lands both crops are as a rule paddy. But a small area may be used for growing garden vegetables, and this is invariably the case in the three crop lands. Only one crop is raised in the dry lands actually tilled and this crop is determined by a rotation of crops, consisting of paddy, other grains and pulses, gingelly, etc. There is great variety in rotation. Usually the field lies fallow once in three years, often for two or three years continuously, according to the fertility of the soil. The importance of rain in due season for paddy cultivation cannot be over-estimated, the whole prospects of the village for the year may be altogether changed by even a slight failure of the monsoon at the critical stages in cultivation. In that case the local prices of paddy go up very suddenly, as now (August 1917).

Only one type of plough is seen—the usual old fashioned country plough, which merely scratches the ground. It lasts only for a year or two and costs only from ten to twelve annas.

Other implements are the levelling board, harrow (a long wooden hammer used by the hand), spade, kuzhi kutti (i.e., burrowing tool), jack-knife, etc. The levelling board costs about Rs. 2½ and lasts from 6 to 8 years; the spade costs Re. 1 and is worn out in a year. It has a blade set at right angles to the handle and is swung like a pick-axe.

Stock.—

	1914.	1910.
(*a*) Working oxen	296	250
(*b*) Cows	350	382
(*c*) Male buffaloes	256	286
(*d*) Cow buffaloes	6	10
(*e*) Young stock of above species ...	266	221
(*f*) Riding horses	2	...
(*g*) Donkeys and mules...	...	..
(*h*) Sheep	...	...
(*i*) Goats	201	285
(*j*) Pigs	...	...

The 1914 figures are approximately true in 1916.

Working oxen and buffaloes are better fed than others. They are given enough straw or grass, and hot conjee (gruel) mixed with oil-cake, bran, atc. Occasionally working oxen are given flesh (fowls). Cows and cow-buffaloes are given straw and conjee and bran water. They are led out to graze on the hill sides and pastures during the day. Their young follow them. The goats are allowed to stray and feed themselves as best they can. Their milk is used for medicinal purposes and is considered very nutritious.

There is no good pasture in the village, and the cattle are lean and bony. After harvest cattle stray over the stubbles, finding what food they can. The fields are often quite small, say 100 by 75 feet, and frequently there are considerable differences of level between adjoining fields, which is a difficulty in the way of proper irrigation.

Manuring.—About seventy-five per cent of the cattle dung is used as manure. The rest is dried in the form of thick cakes